REMARKS

Claims 1-4, and 7-15, 18-20 are all the claims pending in the application, claims 16 and 17 having been canceled without prejudice or disclaimer.

As a preliminary matter, the undersigned gratefully acknowledges the courtesies extended by the Examiner in the May 14, 2002 telephone interview on this matter.

During the interview, Applicant discussed the rejection of claims 1-4 under 35 U.S.C. 112, second paragraph, as well as the prior art rejections of these claims in view of Sgroi (U.S. Patent No. 5,357,048) and Hewitt (U.S. Patent No. 6,100,461).

Concerning the 35 U.S.C. §112, second paragraph rejection, Applicant pointed out that one of ordinary skill will understand that "a low frequency oscillator" and "a transient generator" represent alternative or complementary control signal generators, and therefore independent claims 1 and 2 recite proper Markush groups. The Examiner indicated that this rejection would be reconsidered upon a further review of the claims at issue.

Claims 1-4

Sgroi

Regarding the Sgroi patent, Applicant noted that the systems and methods of claims 1-4 recite at least one incoming (i.e., external) control signal to control associated events and parameters, in contrast to Sgroi's use of internally generated control signals. The Examiner indicated that this distinction is not entirely clear based upon the current claim language. The Examiner suggested that a claim amendment may be necessary, or, alternatively, that Applicant further distinguish Sgroi from the claims at issue.

A further review of Sgroi following the interview revealed that this reference does not teach or disclose a "low frequency oscillator" or a "transient generator", which are recited in claims 1-4. The Examiner asserts in the Office Action (pg. 3) that Sgroi's randomizer reads on Applicant's "transient generator" feature. Applicant respectfully disagrees.

A closer review of Sgroi reveals that the randomizer 64 merely functions as a random number generator, and does not therefore teach or disclose Applicant's "low frequency oscillator" or "transient generator" features. Although randomizer 64 is described as facilitating the generation of "new Total Sounds", it does so by assigning random perturbations to the values of timbre, pitch, volume and dynamic response (Sgroi col. 6, lines 16-24). In fact, Sgroi states that the "core" of the randomizer 64 is a "Random Number Generator ... that produces a 16-bit integer sequence" (Sgroi col. 7, lines 1-3). Furthermore, Sgroi's Figure 8a processor flowchart shows processor 62 receiving the "next random number" in step 186 (*See also*, Sgroi col. 8, lines 1-22). While Sgroi's randomizer 64 may well provide random numbers, it clearly does not teach or disclose Applicant's "low frequency oscillator" or "transient generator" features. Accordingly, independent claims 1 and 2, and their dependencies, claims 3 and 4, are patentable.

Hewitt

Regarding the Hewitt patent, Applicant pointed out that the "wavetable burst controller" described in Hewitt merely defines an address counter for controlling system memory access and is not a transient generator as recited in the systems and methods of claims 1-4. The Examiner acknowledged Applicant's position and stated that a further review of the Hewitt reference would be necessary.

Claims 13-15 and 18-20

Claims 13-15 and 18-20 have not been formally rejected because they were submitted after the mailing date of the present Office Action (January 23, 2002). However, because these claims recite features that are currently at issue, Applicant provides the following remarks.

During the interview, Applicant noted that although Sgroi appears to provide MIDI output signals, it does not teach the use of MIDI signals as an input source. The Examiner acknowledged Applicant's position and noted that although Sgroi appeared to utilize only digital input (non-MIDI) for producing MIDI outputs, a further review of the Sgroi reference and other relevant references would be necessary.

A closer review of Sgroi, Figure 4, reveals that the processor 62 has only two possible sources for input signals; the event complier 58 and the randomizer 64. Although the event complier 58 and randomizer 64 may provide digital signals to the processor 62, these signals are not MIDI signals. For example, Sgroi specifically states that "processor 62 implements a series of subroutines which converts Events into MIDI commands" (*emphasis added*). (Sgroi col. 5, lines 1-2; *See also* col. 5, lines 44-48). Clearly, if Sgroi's input signals were in fact MIDI signals, then there would be no need for the processor 62 to convert these inputs to MIDI signals. Accordingly, while Sgroi describes the use of digital signal inputs to produce MIDI signals, it does not teach the use of MIDI signals as an input source, as recited in claims 13-15, and 18-20. Applicant further asserts that neither Hewitt, nor any of the other references of record teach this feature. As such, claims 13-15 and 18-20, are patentable.

The Examiner's rejections having been overcome, Applicant submits that the subject application is in condition for allowance. The Examiner is respectfully requested to contact the undersigned to discuss other changes deemed necessary.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 16 and 17 without prejudice or disclaimer.

Please amend the remaining claims as follows:

1. (Once Amended) A system for the generation of at least one outgoing real-time digital control signal based on at least one incoming control signal, the system comprising at least one control signal generator of one of the following types:

a low frequency oscillator

a transient generator

wherein the at least one incoming control signal is used to control events and parameters associated with the at least one control signal generator.

2. (Once Amended) A method for the generation of at least one outgoing real-time digital control signal based on at least one incoming control signal, the system utilizing at least one control signal generator of one of the following types:

a low frequency oscillator

a transient generator

wherein the at least one incoming control signal is used to control events and parameters associated with the at least one control signal generator.

3. (Once Amended) The system of claim 1 wherein said at least one outgoing real-time digital control signal is in the form of a MIDI message.

4. (Once Amended) The method of claim 2 wherein said at least one outgoing real-time digital control signal is in the form of a MIDI message.

5. Cancelled

6. Cancelled

7. The system of claim 1 wherein the at least one control signal generator is a transient generator comprising an envelope generator with at least one parameter controlled by the at least one incoming control signal.

8. The system of claim 1 wherein the at least one control signal generator is a transient generator comprising a ramp generator with at least one parameter controlled by the at least one incoming control signal.

9. The system of claim 1 wherein the at least one control signal generator is a transient generator comprising a slew limiter with at least one parameter controlled by the at least one incoming control signal.

10. The method of claim 2 wherein the at least one control signal generator is a transient generator comprising an envelope generator with at least one parameter controlled by the at least one incoming control signal.

11. The method of claim 2 wherein the at least one control signal generator is a transient generator comprising a ramp generator with at least one parameter controlled by the at least one incoming control signal.

12. The method of claim 2 wherein the at least one control signal generator is a transient generator comprising a slew limiter with at least one parameter controlled by the at least one incoming control signal.

13. The system of claim 3 wherein the at least one incoming control signal comprises MIDI messages.

14. The method of claim 4 wherein the at least one incoming control signal comprises MIDI messages.

15. (Once Amended) A method for generating at least one outgoing digital control signal utilizing at least one control signal processor, the method comprising:

processing a first incoming real-time control signal;

processing a second incoming control signal; [and]

determining the at least one outgoing digital control signal based upon a combination of the first incoming real-time control signal and the second incoming control signal[.]; and

wherein the first incoming real-time control signal, the second incoming control signal, and the at least one outgoing digital control signal comprise MIDI messages.

16. [The method of claim 15 wherein the first incoming real-time control signal and the second incoming control signal comprises MIDI messages.]

17. [The method of claim 15 wherein the at least one outgoing digital control signal comprises MIDI messages.]

18. The method of claim 15 wherein both the first incoming real-time control signal and the second incoming control signal comprise values, and wherein the control signal processor performs one operation selected from the group consisting of:

- multiplication of the values of the first and second incoming control signals;
- addition of the values of the first and second incoming control signals.

19. The method of claim 15 wherein a temporal sequence of the first and second incoming control signals is used to generate the at least one outgoing digital control signal.

20. A method for processing an incoming real-time MIDI control signal, the method comprising:

generating an outgoing real-time MIDI control signal, wherein said generating is performed by one or more message conversion methods selected from the group consisting of:

- changing an incoming MIDI note number value to an outgoing MIDI continuous controller value
- changing an incoming MIDI note velocity value to an outgoing MIDI continuous controller value
- changing an incoming MIDI continuous controller value to an outgoing MIDI note value
- changing an incoming MIDI continuous controller value to an outgoing MIDI continuous controller value with scaling
- changing an incoming MIDI continuous controller value to an outgoing MIDI continuous controller value with offset
- changing an incoming MIDI continuous controller value to an outgoing MIDI continuous controller value with complementary magnitude
- changing an incoming MIDI note number value to an outgoing MIDI note number value according to variably transposed intelligent harmony.